EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	98	"4969880"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/25 09:19
S1	10	("20020077661"|"4548202"|"5342376"|"5636643"|"6241747").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/25 09:19

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	4	(("5865772") or ("6051747")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/10/23 10:45
S2	126	(602/3).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/25 10:04
S3	2	603/3 and pump	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/02/21 07:12
S4	14	602/3 and pump	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/25 10:03
S5	2	("4768501").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/10/23 10:52
S6	2	603/3 and pump	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/02/21 07:12
S7	2	603/3 and pump	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/02/21 07:13
S8	111481	(envelope or container or bag) and (pad or gauze or foam) and pressure	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/02/21 07:14

EAST Search History

S9	30379	(envelope or container or bag) and (pad or gauze or foam) and pressure and (absorbent or porous)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/02/21 07:14
S10	15546	(envelope or container or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/02/21 07:14
S11	6261	(envelope or container or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous)	US-PGPUB	OR	ON	2007/02/21 07:15
S12	3646	(envelope or container or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous) and (wound or skin)	US-PGPUB	OR	ON	2007/02/21 07:15
S13	2004	(envelope or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous) and (wound or skin)	US-PGPUB	OR	ON	2007/02/21 07:15
S14	580	(envelope or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous) and (wound or skin) and (impermeable or air adj2 tight)	US-PGPUB	OR	ON	2007/05/25 12:46
S15	1266	(envelope or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous) and (wound or skin) and (impermeable or air adj2 tight)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 11:14
S16	800	604/304.ccls. or 604/305.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 10:32
S17	638	604/306.ccls. or 604/307.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/02/21 09:32

EAST Search History

S18	194	604/308.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/02/21 09:34
S19	1086	602/41.ccls. or 602/42.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/02/21 09:43
S20	1319	602/41.ccls. or 602/42.ccls.or 602/43. ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/02/21 09:49
S21	391	128/888.ccls. or 128/889.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 12:35
S22	220	604/313.ccls. or 604/314.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 14:19
S23	374	604/313.ccls. or 604/314.ccls. or 604/315.ccls. or 604/316.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/02/21 09:59
S24	131	(602/3).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/02/21 10:29

EAST Search History

S25	866	604/289.ccls. or 604/290.ccls or 604/291.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/02/21 10:30
S26	16	602/3 and pump	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/25 10:03
S27	137	(602/3).CCLS.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/25 10:04
S28	879	(604/304-306).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 10:44
S29	748	(604/307-308).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 10:44
S30	1318	(envelope or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous) and (wound or skin) and (impermeable or air adj2 tight)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 11:23
S31	1318	(envelope or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous) and (wound or skin) and (impermeable or air adj2 tight)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 13:34

EAST Search History

S32	583	(604/289).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/25 11:57
S33	394	(128/888-889).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 12:35
S34	224	(604/313-314).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 12:42
S35	1318	(envelope or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous) and (wound or skin) and (impermeable or air adj2 tight)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 13:01
S36	615	(envelope or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous) and (wound or skin) and (impermeable or air adj2 tight)	US-PGPUB	OR	ON	2007/05/25 13:01
S37	615	(envelope or bag) and (pad or gauze or foam) and vacuum and (absorbent or porous) and (wound or skin) and (impermeable or air adj2 tight)	US-PGPUB	OR	ON	2007/05/25 14:18
S38	219	604/315	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 14:28
S39	1338	(602/41-43).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 14:28

EAST Search History

S40	1338	(602/41-43).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 14:42
S41	784	(604/290-291).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/05/25 14:43

Answers.com™ Search

envelope

Dictionary American Heritage® dic·tion·ar·ies

en·ve·lope (ĕn'və-lōp', ŏn'-)

n.

1. A flat paper container, especially for a letter, usually having a gummed flap.
2. Something that envelops; a wrapping.
3. *Biology.* An enclosing structure or cover, such as a membrane or the outer coat of a virus.
4. The bag containing the gas in a balloon or airship.
5. The set of limitations within which a technological system, especially an aircraft, can perform safely and effectively.
6. The coma of a comet.
7. *Mathematics.* A curve or surface that is tangent to every one of a family of curves or surfaces.

idiom:

push the envelope

1. To increase the operating capabilities of a technological system.
2. To exceed the existing limits in a certain field; be innovative.

[French enveloppe, from envelopper, to envelop, from Old French envoloper. See envelop.]

USAGE NOTE The word *envelope* was borrowed into English from French during the early 18th century, and the first syllable acquired the pronunciation (ŏn) as an approximation to the nasalized French pronunciation. Gradually the word has become anglicized further and is now most commonly pronounced (ĕn'və-lōp'). The earlier pronunciation is still considered acceptable, however. A recent survey reveals that the (ŏn'-) pronunciation for the word *envelope* is used by 30 percent of the Usage Panel and is recognized as an acceptable variant by about

20 percent of those Panelists who normally use the (ĕn'-) pronunciation. Other similar words borrowed from French in the modern period include *envoy* (17th century), *encore, ennui, ensemble, entree* (18th century), *entourage,* and *entrepreneur* (19th century). Most retain their pseudo-French pronunciations, with the exception of *envoy,* which, like *envelope,* is mainly pronounced with (ĕn) now.

How Products are Made

How is an envelope made?

Background

An envelope is a flat, flexible container, made of paper or similar material, that has a single opening and a flap that can be sealed over the opening. The envelope is usually sealed by wetting an area of the flap. Some envelopes are sealed with a metal fastener. Others are sealed with a piece of string that wraps around flat, circular pieces of cardboard attached to the envelope. A recent development in envelopes is a thin strip of plastic, which is removed to reveal an area of the flap with an adhesive that does not need moistening.

Envelopes are almost always rectangular, but they exist in a wide range of sizes. The two main styles used are banker envelopes, which have the opening on the long side, and pocket envelopes, which have the opening on the short side. In the United States, standard sizes range from 3.5 x 6 in (89 × 152 mm) to 10 x 13 in (254 x 330 mm). In Europe, sizes range from 3.2 x 4.5 in (81 x 114 mm) to 11 x 15.75 in (280 x 400 mm). Sizes are somewhat different in the United Kingdom, with the most common being 4.25 x 8.625 in (108 x 219 mm).

Some envelopes have one or more windows cut into the front to allow addresses written on sheets inside to be seen. These windows may be covered with a transparent material.

History

The earliest ancestor of the envelope was used by the ancient Babylonians five or six thousand years ago. Messages were written on clay tablets, which were baked to harden them. The tablets were then covered with more clay and baked again. The inner tablet could only be revealed by breaking open the outer layer of clay,

ensuring the security of the message.

True envelopes did not exist until much later, long after the invention of paper. The oldest form of paper was papyrus, first manufactured by the ancient Egyptians at least as early as 3000B.C. Papyrus was made from a fibrous material found within the woody stems of an aquatic, grassy plant *(Cyperus papyrus)*. Long strips of this material were placed side by side, then covered with another layer of strips at right angles to the first. The sheet formed by the two layers was dampened, pressed, dried, flattened, then dried again. The resulting papyrus, if properly made, was pure white and free from spots and stains. An excellent writing material, papyrus was used extensively by the ancient Egyptians, Greeks, Romans, and Arabs. It continued to be used until paper made from other plant sources reached the rest of the world from China. Some papyrus was used in Europe as late as the twelfth century.

Early forms of Chinese paper, made from reeds and rice, date back as far as 1200B.C. A superior kind of paper, similar to modern paper, was first made about the year 105. Attributed to a court official named Ts'ai Lun, this improved paper was made from a mixture of materials, including mulberry and other woody fibers, hemp, rags, and fishing nets. Papermaking spread slowly from East to West, reaching Central Asia by 751 and Baghdad by 793. By the fourteenth century, there were several paper mills throughout Europe, particularly in Spain, Italy, France, and Germany. The development of the printing press in the 1450s greatly increased the demand for paper.

The early history of the paper envelope is not known. Paper may have been used to wrap messages at a very early date in China. They did not appear in Europe until the seventeenth century, when they began to be used in Spain and France. Until that time, messages were simply folded and sealed. Even today, some stationery is designed to be folded and mailed without an envelope.

Cotton and linen rags were the main raw materials used to make paper until the early nineteenth century, when they were replaced by wood. At about the same time, papermaking by hand began to be replaced by papermaking machines. The emerging envelope industry was noted by Karl Marx in his book *Das Kapital* in 1867. Envelope manufacturers continued to increase the speed of production, from three thousand envelopes per hour at the time of Marx to more than fifty thousand per hour in the late twentieth century. By the late 1990s, nearly two hundred billion envelopes were made in the United States each year.

Raw Materials

Most envelopes are made from paper. Some large, strong envelopes are made from synthetic materials, such as polyethylene. Polyethylene is a plastic made

from ethylene, which is derived from petroleum.

Paper used for most envelopes is made from wood. Modern technology allows the wood to come from almost any kind of tree. Paper used to make very high quality envelopes, such as those used to enclose formal invitations, may be made partly or completely from cotton or linen. Some envelopes are made from manila, a fiber from the leaves of a plant found in the Philippines that produces a strong, yellowish paper. Most so-called manila envelopes, however, are made of paper derived from wood which only resembles true manila.

The glue applied to envelopes is of two basic types. The glue applied to the flap that is sealed by the consumer is usually a gum. A typical natural gum is gum arabic, derived from a substance produced by the acacia tree. Synthetic gums are often derived from dextrans, which are produced by the fermentation of sugar. The glue that holds the rest of the envelope must be stronger and more permanent. This glue is often derived from starches, which are obtained from corn, wheat, potatoes, rice, and other plants.

The fastener attached to some envelopes is made of aluminum or other metals. The string attached to other envelopes is made of cotton or other fibers. The material covering the windows in some envelopes is usually polystyrene. Polystyrene is a plastic made from styrene, a derivative of petroleum.

The Manufacturing Process

Making wood pulp

- Mechanical methods can be used to transform wood into pulp, but this produces a relatively weak paper that is used for newspapers and similar products. Paper intended to be used for envelopes is made from pulp obtained by chemical means.
- The most common chemical method used to make wood into pulp is known as kraft pulping. Chips of wood are placed in a large, sealed container known as a digester. The digester contains a strongly alkaline solution of sodium hydroxide and sodium sulfide. The mixture is heated to a temperature between 320-356° F (160-180°C) at a pressure of about 116 pounds per square inch (800 kilopascals) for about one-half to two hours.
- Various methods exist to bleach the resulting pulp. Bleaching removes lignin, a substance found in wood pulp that gives paper a brown color. In general, bleaching involves mixing the pulp with a series of oxidizing chemicals that react with the lignin. After each mixture, the pulp is washed with an alkaline solution that removes the treated lignin.
- In order to improve the brightness, opacity, and smoothness of the paper,

fillers are added to the pulp. A typical filler is a clay known as kaolin. Other chemicals often added to pulp include various starches or gums to make the paper stronger. Rosin (a substance derived from pine trees) and alum (aluminum sulfate) are often added as sizers. Sizing makes the paper less absorbent, so that addresses written on the envelope in ink will not run and blur.

Making paper

- Pulp is added to water to form a very dilute slurry in order to make paper with an even density. The slurry is pumped onto a moving mesh screen. This screen is made up of very fine wires of metal or plastic. Water drains through the small openings in the mesh, forming a sheet of wet material from the slurry. Rapidly spinning rollers beneath the mesh create suction, a partial vacuum that removes more water from the mixture.
- The sheet is moved on a belt made of felt containing wool and synthetic fibers. The felt absorbs water and prevents the sheet from being damaged as it moves between rollers, which squeeze out more water. The sheet then moves to a belt made of felt containing cotton and other fibers. This lighter felt allows water vapor to escape as the sheet is moved around a series of steam-heated rollers. As many as 40-70 rollers may be needed to dry the sheet.
- The dried sheet moves between rollers known as calendars to make it smooth. It is then wound on a large reel. Variations in the papermaking process produce paper in a wide variety of basis weights. The basis weight of paper is the weight, in pounds, of a ream of 480 sheets cut to a size of 24 x 36 in (610 x 914 mm). Envelope paper usually has a basis weight between 16 and 40, with a basis weight of 24 being typical. Although many other kinds of paper are coated after being made, envelope paper is usually uncoated.

Making envelopes

- Rolls of paper, typically weighing 220 lb (100 kg), arrive at the envelope factory. The paper may need to be cut before it enters the automated machine that makes the envelopes, or it may be fed directly into the machine from the roll. If it is cut outside the machine, it is first cut by sharp blades into sheets of the proper size. The sheets are then stacked into large piles for further cutting. Strong blades then cut the pile of sheets into blanks. A blank has the shape of an envelope with its flaps opened and laid flat. Blanks are generally shaped like diamonds and are cut from the sheets in such a way as to minimize waste. If the roll is fed directly into the machine, it cuts the paper into blanks very quickly with sharp blades.
- The machine performs all the operations needed to transform blanks into

envelopes at a very rapid pace. Windows are cut if needed. If a transparent covering is needed for the windows, a strong glue is applied around them. The transparent material is then cut and glued in place. Strong glue is also applied to the places that will hold the envelope together. A weaker glue is applied to the flap that will be sealed by the consumer. The machine then folds the blank to form the envelope. Optional printing or fasteners are applied. The completed envelopes are filled in cardboard boxes and shipped to retailers.

Quality Control

Modern envelope manufacturing is highly automated, and almost always results in a reliable product. Although constant testing is not necessary, certain factors are checked to ensure quality. Paper arriving at the factory is inspected to be sure that it has the correct weight. A very small number of sample envelopes are checked to ensure that they have the correct shape and size, and that adhesives have been applied in the correct places. Any printing that appears on the envelope must be in the correct position, of the correct color, and without printing errors. If any windows are cut in the envelope, they must have the correct dimensions and be in the correct position.

The Future

Although major changes in envelope design are not expected, innovations are likely in the way paper is made. Manufacturers are constantly looking for ways to make paper that are more efficient, less costly, and result in less pollution. Genetic engineering may result in trees that grow faster and produce wood that is better adapted to producing pulp. A recent trend that is likely to continue is the increasing use of recycled paper as a raw material for making envelopes and other paper products.

Where to Learn More

Books

Biermann, Christopher J. *Essentials of Pulping and Papermaking.* New York: Academic Press, 1993.

Ferguson, Kelly, ed. *New Trends and Developments in Papermaking.* Miller Freeman, 1994.

Periodicals

Keman, Michael. "Pushing the Envelope." *Smithsonian* (October 1997): 30-31.

Other

Ohio Envelope Manufacturing Company. http://www.ohioenvelope.com/ (September 30, 1998).

[Article by: Rose Secrest]

Computer Encyclopedia

TechEncyclopedia

envelope

(1) A range of frequencies for a particular operation.

(2) A group of bits or items that is packaged and treated as a single unit.

Three Related Articles from CMP's TechWeb

- With The H-1B Visa Cap Filled In Record Time, Reform Is In The Air
- From Our Blog
- NIST Likely To Lift Windows Vista Ban
- Find the latest news, features and reviews relating to "envelope" from CMP's TechSearch.

Investment Dictionary

Investopedia

Envelope

A trading band composed of two moving averages, one of which is shifting upwards and the other shifting downwards.

Investopedia Says: These trading bands are used by

Related Topics

- Bollinger Bands
- Chartist
- Consolidation
- Gann Angles
- Moving Average

technical analysts to define a stock's upper and lower boundaries. Signals to sell occur when the stock price reaches the upper band, and buy signals are generated when the price reaches the lower band.

- Technical Analysis

The reasoning behind the sell and buy signals is that stock prices tend to bounce off the bands. Even though buyers and sellers will temporarily pressure a stock's price to its extremes, it should re-stabilize to more realistic levels found within the envelope.

Word Origin

HOUGHTON MIFFLIN COMPANY

envelope
Origin: 1988

Long before 1988, in the early years after World War II, *push the envelope* was on the cutting edge (1951) of aviation. It referred to the *envelope*, or limit of performance for an aircraft, and test pilots like Chuck Yeager who had "the right stuff" (in the phrase popularized by Tom Wolfe's best-selling 1979 book) were always on the edge of danger, pushing the envelope.

But it was only in about 1988 that we pushed the envelope of *pushing the envelope* beyond the fields of aviation and space so that it stretched to fit any enterprise. We began to speak of such matters as "pushing the envelope of taste," to take a 1991 example from the *Wall Street Journal*. Astronomers with the Hubble telescope, criminals with alibis, movie directors with scenes of violence or absurdity, con artists, and corporate raiders can now be said to be pushing the envelope in their various fields of endeavor.

We have many ways of saying it. Sometimes it is the edge of the envelope that we expand or stretch as well as push, whether in aircraft speed, computer power, campaign finance, or lifestyle. So in 1992, for example, Marilyn Quayle, wife of Vice President Dan Quayle, explained that she went rollerblading in neon tights because "I like anything that stretches the edge of the envelope a little bit."

Architecture

envelope

1. The imaginary shape of a building indicating its maximum volume; used to check the plan and setback (and similar restrictions) with respect to zoning regulations.
2. The folded-over, continuous edge formed by turning the lowest ply of a built-up roofing membrane over the top surface layer; prevents bitumen from dripping through the exposed edge joints and seepage of water into the insulation.

Literary Dictionary

envelope

envelope, a structural device in poetry, by which a line or stanza is repeated either identically or with little variation so as to enclose between its two appearances the rest (or part) of the poem: a stanza may begin and end with the same line, or a poem may begin and end with the same line or stanza. A well-known example is Blake's poem 'The Tiger', in which the opening stanza is repeated as the last with only one change of wording. The effect of an envelope pattern is subtly different from that of a refrain. The term *envelope stanza* has also been applied to stanzas not involving repeated lines but having a symmetrical rhyme scheme (almost always *abba*) which encloses one set of rhymes within another, as in the In Memoriam stanza.

Medical Dictionary

en·ve·lope (ĕn'və-lōp', ŏn'-)
n.

An enclosing structure or cover, such as a membrane or the outer coat of a virus.

Poetry Glossary ilovepoetry

Envelope

A poetic device in which a line, phrase, or stanza is repeated so as to enclose other material.

Devil's Dictionary

A cynical view of the world by Ambrose Bierce

envelope
n.

The coffin of a document; the scabbard of a bill; the husk of a remittance; the bed-gown of a love-letter.

Spelling & Usage

envelope

IN BRIEF: n. - Any wrapper or covering; A flat rectangular paper container for papers; The bag containing the gas in a balloon; The maximum operating capability of a system; A natural covering (as by a fluid).

Did you address the envelope properly?

Tutor's tip: The postal "envelope" (a wrapper, a covering) was not big enough to "envelop" (to wrap up; to cover completely) the catalogs for mailing.

US Industry Profile

Envelopes

(SIC 2677)

This category includes establishments primarily engaged in manufacturing envelopes of any description from purchased paper and paperboard. Establishments primarily engaged in manufacturing stationery are classified in SIC 2678: Stationery, Tablets, and Related Products.

NAICS CODE(S)

322232 (Envelope Manufacturing)

INDUSTRY SNAPSHOT

The envelope category is classified as a converting operation, since it transforms a finished product (rolls and sheets of paper and paperboard or synthetic materials) into envelopes. In 2000 U.S. manufacturers shipped $3.77 billion worth of envelopes, compared to $3.58 billion in 1999, according to the U.S. Census Bureau.

In the late 1990s, commercial white or colored mailing envelopes accounted for about 60 percent of industry shipments. Kraft mailing envelopes represented 7 percent of the total, followed by clasp and string/button envelopes, at 2 percent. All other envelopes, including padded shipping envelopes, accounted for the remaining 31 percent.

The envelope industry is obviously a major consumer of paper. In the late 1990s envelope converters consumed $1 billion worth of paper and paperboard in their manufacturing processes, mostly uncoated freesheet and kraft paper, according to the U.S. Economic Census. Mailing and in-house envelopes, which use adhesive seals, metal clasps, or string-and-button closures, are another important segment of the industry, as are heavy-duty padded shipping envelopes and mailers. Converters also used $109 million worth of paperboard containers, boxes, and corrugated paperboard—primarily to ship their products. Additionally, converters used $40 million worth of glues and adhesives and $94 million of plastic film and sheet. The industry also used $359 million worth of other materials.

The envelope industry is not a growing industry; it can be considered static since it is neither growing nor declining rapidly. Envelope shipments ranged between 166 billion units and 178 billion units throughout the 1990s, with small increases or declines each year. The value of shipments is also relatively static.

The chief threat to the envelope industry is alternative means of transmitting information, from mediums such as the Internet, fax machines, voice mail message systems, electronic mail, and other electronic communications systems. However, despite these threats some industry observers point out that new technologies rarely eliminate "old" technologies; they simply move them into new

applications. Just as television did not eliminate radio broadcasts, electronic communications are not likely to completely eliminate the use of "old-fashioned" mail.

ORGANIZATION AND STRUCTURE

Envelope manufacturing is widely distributed throughout the United States and basically involves folding, gluing, and printing on high-speed converting equipment. There are many companies involved in envelope manufacturing, including numerous small producers. As in other industries though, the envelope industry is consolidating as larger, more efficient producers buy up smaller entities or force them out of business.

The domestic envelope sector continued to suffer from over capacity, low capacity utilization rates, and flat or declining prices in the late 1990s. In simple terms, there was too much envelope-folding machine capacity compared to total envelope demand. Many converters reacted by scrapping older, less-efficient equipment or even closing some plants. Little new plant construction was anticipated in the late 1990s, as converters instead pursued a strategy of rebuilding or refurbishing older machines so that they could compete more effectively with new equipment.

While paper envelopes have traditionally been made from 100 percent virgin fiber, many converters have reacted to public demand for more environmentally friendly products by introducing standard business and specialty envelope products that contain varying amounts of recycled materials. Since the products themselves can be recycled, they hold an advantage over newer plastic and olefin envelopes. In fact, some municipal collection programs collect "junk mail," giving paper-based envelopes an environmental plus.

Most paper envelopes are made from uncoated freesheet, one of the largest grades produced by U.S. paper mills. In 1998, envelope grades accounted for about 10 percent of the 13.7 million tons of uncoated freesheet produced by U.S. mills.

Specialty Envelopes. While standard business and commercial stationery envelopes still account for the majority of envelopes produced in the United States, in the mid-1990s specialty envelopes emerged as the fastest-growing segment of the envelope industry. This growth has been spurred by several factors, including the proliferation of specialty "quick print" shops and home-based envelope printing. Many quick print shops use personal computers and laser printers to create custom-printed business forms, stationery, and envelopes.

Envelopes for the specialty market must be able to accept the output of laser printers, which use dry plastic toner ink that is fused to the paper in a heating process similar to that of copier machines. Specialty envelopes also require special adhesives and cannot use windows, snaps, buttons, or clasps. They must also be made of paper, since nylon, plastics, and olefin cannot accept the dry ink process.

Shipping Envelopes. Another growing market for envelope converters is the parcel delivery industry. Providers of overnight services, such as Express Mail, Federal Express, and United Parcel Service, offer shipping envelopes free to their customers. These envelopes are made from several materials, includingpaper, paperboard, nylon, spunbonded olefin, plastic, and plastic resin. The overnight package delivery industry, begun in the 1970s, was delivering more than 4 million packages daily in the late 1990s.

Catalog services, which proliferated in the 1980s and 1990s, are a major market for shipping envelopes as well. Aided by the vast expansion of credit cards and toll-free telephone numbers, catalogs exist for every imaginable consumer need. Each catalog order must be shipped in envelopes or paperboard boxes. More recently, e-businesses operating on the Internet have expanded the market for home shopping, adding to demand for shipping envelopes.

In addition to catalogs and e-business, telemarketing and television shopping networks are major users of shipping envelopes and mailers. Envelopes and mailers for catalog and direct mail orders must meet strict shipping requirements and thus are heavier and more expensive than other envelopes. They come in a wide range of shapes, sizes, and combinations of base construction materials.

Direct Mail. Third-class, direct mail advertisers are another major market for envelope converters. Consumers responding to direct mail solicitations often trigger an avalanche of paper use, including the paper and envelope for the solicitation, the paper and return envelope containing the order, and the envelope or box in which the product is shipped to the consumer. Direct mail experienced an enormous boom in the 1980s and 1990s, despite perceived negative consumer perceptions about the practice. While costly, direct mail allows manufacturers to target their marketing efforts directly to consumers most likely to purchase their products, avoiding the "waste" of traditional mass media, where many consumers reached by an ad are unlikely to buy the product or service it promotes. The expansion of consumer databases and the ability by marketers to more closely define certain market "niches" has allowed marketers to fine tune their direct mail solicitations, leading to long-term growth in this advertising and marketing vehicle.

One of the major costs of direct mail advertising is postage. Postal rates have

been rising far faster than inflation as the U.S. Postal Service (USPS) attempts to come closer to recouping its actual costs for each class of mail. Direct mail advertisers were aware that the major postal rate hike in 1994 and a smaller one in 1997 would likely be followed by others, so they look for ways to reduce the cost of each mailing. One way of reducing costs is by "lightweighting" envelopes, using envelopes made with either lighter paper or with lightweight plastics or composites. Envelopes made from nontraditional materials are more resistant to tearing and puncturing and are more resistant to water. However, traditional paper envelopes still dominate both the standard and specialty envelope sectors because of their low cost and other properties, such as high strength, rigidity, and resistance to curl and fold.

CURRENT CONDITIONS

The USPS remains the dominant carrier of envelopes and plays an integral part in sustaining this industry. Mail volume is expected to begin to decrease in the 2000s. According to the U.S. General Accounting Office (GAO), first-class mail volume will decline at an average annual rate of 0.8 percent in U.S. government fiscal years 1999 to 2008. While first-class mail is projected to grow at an average annual rate of 1.8 percent in fiscal years 1999 to 2002, it is also projected that growth will then decline at an average annual rate of 2.5 percent in fiscal years 2003 to 2008. If realized, this would be the first decline in the history of the USPS and would have a major negative effect on envelope production.

For the early 2000s, the envelope industry is expected to sustain very modest growth. However, the rest of the decade is more uncertain, particularly if projections of a first class mail decline come true. Other factors, such as higher mailing costs, may also negatively impact the industry as the decade continues.

In the late 1990s, the U.S. envelope industry improved operating efficiency and reduced heavy over capacity in converting equipment. This strategy boosted the relatively low operating rate (the percentage of time equipment is operating) that plagued the industry in the early 1990s. As less efficient converters with aging plants become uncompetitive, more plant closures and layoffs are expected in the envelope industry. In fact, employment of production workers in envelope converting slipped from a high of 21,100 in 1989 to 19,887 in 2000.

By the late 1990s, many envelope manufacturers had dramatically increased their purchases of envelope stock containing recycled fiber in order to accommodate increased consumer demand for recycled products. (Paper used to make "recycled" envelopes typically contains a mix of recycled fiber and virgin fiber.) Federal agencies and state government are required by law to choose recycled paper products, including envelopes, if they are available. As a result, converters

have developed and aggressively marketed new recycled/recyclable envelopes and mailers.

INDUSTRY LEADERS

Unlike other paper categories, where paper manufacturers also control most of the converting operations through integrated subsidiaries, almost all of the leading envelope converters are independent of paper producers. Leading companies in this category include American Business Products of Atlanta, Georgia; Mail-Well Envelope of Englewood, Colorado; New York Envelope of Long Island City, New York; and Tension Envelope of Kansas City, Missouri.

WORKFORCE

The envelope segment employed 25,208 people in 2000 with a total payroll of $852 million. Production workers accounted for 19,887 of that total and earned hourly wages averaging $14.26 that year. The number of people employed by envelope converters has been dropping as the industry decreases the total number of plants producing envelopes and invests in more heavily automated operations.

AMERICA AND THE WORLD

International trade in envelopes is relatively small, since envelopes tend to be manufactured close to where they are ultimately used. Nonetheless, U.S. converters have expanded their exports, mostly to nearby trading partners such as Canada and Mexico. The North American Free Trade Agreement (NAFTA) with Mexico and Canada, ratified by the United States in 1993, was expected to help expand the exports of efficient U.S. converters.

RESEARCH AND TECHNOLOGY

Much of the research and technology in envelope manufacturing has focused on improving converting equipment, which allows envelopes to be produced faster and with better quality. Indeed, slower pre-1970 equipment is slowly going out of production, since capacity utilization on this equipment has dropped from 57 percent in 1994 to 48.9 percent in 1996. Capacity utilization of higher-speed, post-1970 equipment remained high at 84.9 percent in 1994 and 85.1 percent in 1996, according to the Envelope Manufacturers Association.

As the speed of the envelope converting equipment increases, however, new problems emerge. Previously, for example, most paper was produced using an acid process. However, due to the desire to reduce costs and improve the life of paper products, nearly all mills producing fine paper, which is used in many

envelopes, have converted to the alkaline process.

Alkaline paper is usually produced with a synthetic "sizing" product, such as alkylketene dimer (AKD), to improve the surface of the paper. AKD is used to produce many fine paper grades, including envelope paper. On newer, high-speed precision converting equipment, AKD paper has been known to "slip," causing runnability problems. Recent research though, has prompted the development of new sizing products that allow envelope manufacturers to use alkaline paper without concerns about runnability. Such innovations have helped improve efficiency and keep the industry competitive.

Envelope converters clearly face competition from electronic personal communications and electronic data interchange. For example, while electronic bill payment was still in its infancy at the beginning of the 2000s, it was expected that this method of bill payment would grow dramatically, reducing demand for envelopes. Still, while envelopes may be a smaller percentage of the total communication market, their use will continue as the entire market grows even faster. In addition, the fact that envelopes are still a very low cost, attractive way to send information means that the envelope market will remain stable, or at least not experience massive declines, for the foreseeable future.

FURTHER READING

Darnay, Arsen J., ed. *Manufacturing USA*. 6th. Ed. Farmington Hills, MI: Gale Group, 1998.

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Outlook for Envelopes, 2000. Alexandria, VA: Envelope Manufacturers Association, 1999.

Paper, Paperboard, Pulp Capacity and Fiber Consumption. Washington, D.C.: American Forest & Paper Association, 1998.

United States Census Bureau. "Statistics for Industries and Industry Groups: 2000." *Annual Survey of Manufacturers*. February 2002.

U.S. Trade and Industrial Outlook 2000. New York: McGraw-Hill, 1999.

WordNet

Note: click on a word meaning below to see its connections and related words.

The *noun* envelope has 6 meanings:

Meaning #1: a flat rectangular paper container for papers

Meaning #2: any wrapper or covering

Meaning #3: a curve that is tangent to each of a family of curves

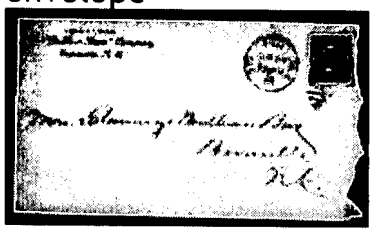
Meaning #4: a natural covering (as by a fluid)

Meaning #5: the maximum operating capability of a system

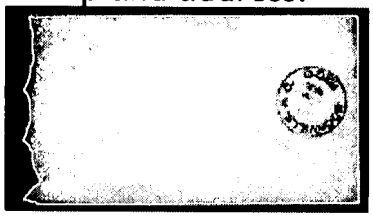
Meaning #6: the bag containing the gas in a balloon
Synonym: gasbag

Wikipedia

envelope



Front of an envelope mailed in the U.S. in 1906 contains postage stamp and address.

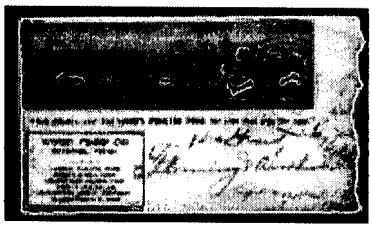


Back of an envelope mailed in the U.S. in

1906 contains an
additional postmark.

An **envelope** is a packaging product, usually made of flat, planar material such as paper or cardboard, and designed to contain a flat object, which in a postal-service context is usually a letter or card. The traditional type is made from a sheet of paper cut to one of three shapes: the rhombus (also referred to as a lozenge or diamond), the short-arm cross, and the kite. These designs ensure that when the sides of the sheet are folded about a delineated central rectangular area, a rectangular-faced, usually oblong, enclosure is formed with an arrangement of four flaps on the reverse side, which, by virtue of the shapes of sheet traditionally used, is inevitably symmetrical.

Overview



Envelope with
advertising from 1905
used in the U.S.

When the folding sequence is such that the last flap to be closed is on a short side it is referred to in commercial envelope manufacture as a "'pocket'" - a format frequently employed in the packaging of small quantities of seeds. Although in principle the flaps can be held in place by securing the topmost flap at a single point (for example with a wax seal), generally they are pasted or gummed together at the overlaps. They are most commonly used for enclosing and sending mail (letters) through a prepaid-postage postal system.

Window envelopes have a hole cut in the front side that allows the paper within to be seen. They are generally arranged so that the sending address printed on the letter is visible, saving the sender from having to duplicate the address on the envelope itself. The window is normally covered with a transparent or translucent film to protect the letter inside. In some cases, shortages of materials or the need to economize resulted in envelopes that had no film covering the window. One innovative process, invented in Europe about 1905, involved using hot oil to saturate the area of the envelope where the address would appear. The treated area became sufficiently translucent for the address to be readable. A typical use for window envelopes is courtesy reply mail.

An aerogram is related to a lettersheet, both being designed to have writing on the inside to minimize the weight. Any handmade envelope is effectively a lettersheet because prior to the folding stage it offers the opportunity for writing a message on that area of the sheet that after folding becomes the inside of the face of the envelope.

A Japanese funeral envelope used for offering condolence money. The white and black cords represent death. Similar-looking envelopes with red and silver cords are used for weddings.

The "envelope" used to launch the Penny Post component of the British postal reforms of 1840 was a lozenge-shaped lettersheet known as a Mulready. But if desired, a separate letter could be enclosed with postage remaining one penny, provided the combined weight did not exceed half an ounce (about 13 grams). This was a legacy of the previous system of calculating postage, which partly depended on the number of sheets of paper used.

A "return envelope" is a preaddressed, smaller envelope included as the contents of a larger envelope and can be used for courtesy reply mail, metered reply mail, or freepost (business reply mail). Some envelopes are designed to be reused as the return envelope, saving the expense of including a return envelope in the contents of the original envelope. The direct mail industry makes extensive use of return envelopes as a response mechanism. there are new "reusable envelopes" available called "shuttlepost", sizes are standard C5 and C6 (UK)these

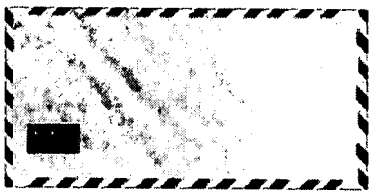
envelopes save at least 48% of paper waste and may be reused many times. Up until 1840 all envelopes were handmade, each being individually cut to the appropriate shape out of an individual rectangular sheet. In that year George Wilson in the U.K. patented the method of tessellating (tiling) a number of envelope patterns across and down a large sheet, thereby reducing the overall amount of waste produced per envelope when they were cut out. In 1845 Edwin Hill and Warren de la Rue obtained a patent for a steam-driven machine that not only cut out the envelope shapes but creased and folded them as well. (Mechanised gumming had yet to be devised.) The convenience of the sheets ready cut to shape popularized the use of machine-made envelopes, and the economic significance of the factories that had produced handmade envelopes gradually diminished.

As envelopes are made of paper, they are intrinsically amenable to embellishment with additional graphics and text over and above the necessary postal markings. This is a feature that the direct mail industry has long taken advantage of -- and more recently the Mail Art movement.

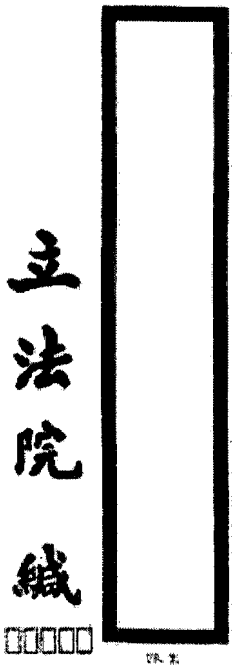
Most of the over 400 billion envelopes of all sizes made worldwide are machine-made. The envelope-machine making industry is dominated internationally by WINKLER+DÜNNEBIER.

Post office requirements

Post offices prefer envelopes to be rectangular rather than square, as this reduces the amount of sorting that is needed to line up all the envelopes with the addresses reading the same way.



Air mail envelope



A Chinese-style envelope used in Taiwan and printed for official use by the Legislative Yuan. The red box in the center is for the name of the recipient, written vertically in Chinese characters. The address is also written vertically to the right of the red box. The postal code is written in the boxes in the lower left-hand corner.

In some countries using postcodes, common envelopes are preprinted with lines and boxes that help write those postcodes in a consistent way in a consistent position.

Australia

In

More recently, the post office has realized that it can combine the RP number and the Box number, which saves writing and reduces the number of errors.

- Wiki Foundation
- Reply Paid 1345
- Wherever NSW 1435

An important customer like the Taxation Office would have a RP number the same as the post code, to minimize errors even more.

- Wiki Foundation
- Reply Paid 1435
- Wherever NSW 1435

Other countries use freepost as well, although the envelope designs required by those countries' postal authorities differ widely from that described above. For example, in the U.S., Reply Paid is called Business Reply Mail.

Envelopes in the Soviet Union were printed with something like the common 7 segment LCD display, to assist the user to write the 6-character postcode directly in machine-readable format.

Phrases

- Back-of-the-envelope calculation
- Brown envelope

See also

- Envelope size
- Secrecy of correspondence
- Return address
- Aerogram

Look up ***Envelope*** in Wiktionary, the free dictionary.

Translations

Translations for: Envelope

Dansk (Danish)
n. - konvolut, hylster, ballonhylster, kolbe, pære, enveloppe, svøb, indhyldningsflade

Nederlands (Dutch)
envelop, wikkel, verpakking, schil, curve, beperking, (gas)ballon, omkleding, omsingelen

Français (French)
n. - enveloppe, pli

Deutsch (German)
n. - Hülle, Briefumschlag

Ελληνική (Greek)
n. - φάκελος, περίβλημα, χιτώνας

Italiano (Italian)
involucro, busta

Português (Portuguese)
n. - envelope (m), tegumento (m) (Biol.), halo (m) (Astron.)

Русский (Russian)
конверт, оболочка, пленка, конверт с маркой и написанным адресом

Español (Spanish)
n. - envoltura, revestimiento, sobre

Svenska (Swedish)
n. - kuvert, omslag

中文（简体）(Chinese (Simplified))
信封, 封袋, 封套

中文（繁體）(Chinese (Traditional))
n. - 信封, 封袋, 封套

한국어 (Korean)

n. - 봉투

日本語 (Japanese)
n. - 封筒, 包み, 覆い, 包絡線, 範囲, 外皮

idioms:

- stamped addressed envelope 返信用封筒

العربيه (Arabic)
غلاف ,ظرف (الاسم)

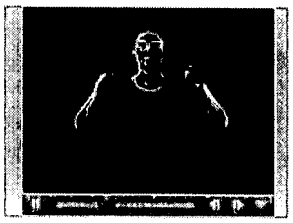
עברית (Hebrew)
n. - מעטפה

If you are unable to view some languages clearly, click here.

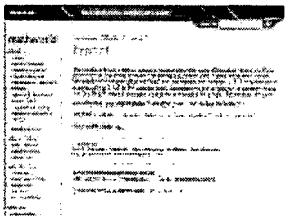
To select your translation preferences click here.

Best of the Web

Some good "**envelope**" pages on the web:



American Sign Language
commtechlab.msu.edu



Math
mathworld.wolfram.com

Shopping

envelope
envelope seals

Flap Envelope By Schlesinger
String Envelope 2 Gusset

Stationary Supplies Online Trifold

clear envelope
lexmark t envelope feeder
Envelope
Weibull fading

Post a question to the WikiAnswers Community.